Remarks

Applicants thank the Examiner for the telephone interview to discuss a way forward in resolving the rejections offered by the Examiner with respect to the Karabin et al reference. In that interview Applicants agreed to amend claims 1 and 2, the only independent claims in the case, by substituting the phrase "consisting essentially of" for "comprising" in both claims. Karabin et al claim and disclose the use of zirconium as a means to keep the alloy product from recrystallizing. Applicants do not add zirconium to its alloy product and in fact desire a recrystallized product. Accordingly, Applicants respectfully request that the Examiner reconsider the rejection of the claims under 35 USC §102 and §103 in view of Karabin.

Applicants have also included a Declaration under 37 CFR §1.132 stating certain facts as they relate to the T351 and T39 tempers. Those of ordinary skill in the art know that the yield strengths in a T351 temper will be consistently less than those in a T39 temper, especially in a 2xxx alloy. Additionally, those skilled in the art also know that the addition of zirconium will cause a 2xxx alloy to remain unrecrystallized.

Applicants now assert that the application is in condition for allowance in view of the above amendments. There is no overlap in composition, thus dispensing with the anticipation rejection under §102 and it would be clear from a reading of Karabin et al that a teaching of maintaining a recrystallized alloy product to retain yield strengths yet increase toughness would not be fairly taught. In fact to one of ordinary skill in the art, Karabin would teach away from Applicants' product thereby overcoming the §103 rejection.

It is respectfully submitted that the present application is in condition for allowance. If the Examiner would like to suggest changes of a formal nature to place this

application in better condition for allowance, a telephone call to Applicants' undersigned attorney would be appreciated.

Respectfully submitted,

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Marked Claims

1. (Twice Amended) A 2000 series aluminum alloy [comprising] consisting essentially of in weight per cent about 3.60 to 4.25 copper, about 1.00 to 1.60 magnesium, about 0.30 to 0.80 manganese, no greater than about 0.05 silicon, no greater than about 0.07 iron, no greater than about 0.06 titanium, no greater than about 0.002 beryllium, the remainder aluminum and incidental elements and impurities, wherein a T_{max} heat treatment is below the lowest incipient melting temperature for a given 2000 series alloy composition and the Cu_{target} is determined by the expression:

$$Cu_{target} = Cu_{eff} + 0.74(Mn - 0.2) + 2.28(Fe - 0.005)$$

wherein said alloy maintains the yield strength and improves by a minimum of % compared to the average values of standard 2324-T39 alloy shown in Fig. 1 for the same properties selected from the group consisting of the plane strain fracture toughness, K_{Ic}, the plane stress fracture toughness, K_{app}, the stress intensity factor range, ΔK at a fatigue crack growth rate of 10 μ-inch/cycle wherein R = 0.1 and RH is greater than 90%, and combinations thereof.

2. (Amened) A 2000 series aluminum alloy [comprising] consisting essentially of a composition within the box of W, X, Y, and Z as defined in Fig. 5, wherein T_{max} for each composition corner point is about W = 925°F, X = 933°F, Y = 917°F, and Z = 909°F, wherein Cu_{target} is defined by the following equation:

$$Cu_{target} = Cu_{eff} + 0.74(Mn - .03) + 2.28(Fe - 0.005)$$

40. (Amened) The 2000 series aluminum alloy of claim 1 where in said ΔK at a fatigue crack growth rate of 10 μ-inch/[cyckle] cycle improves by a minimum 1.00 ksi$\sqrt{in}$ with R equal to 0.1 and RH greater than 90%.